# *Buridrillia deroyorum*, New Species from the Galapagos Islands, a Living Record of a Neogene Turrid Genus

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ABSTRACT

*Buridrillia deroyorum* new species is described from 310 meters off Isla Floreana (type locality) and 365 meters off Isla Duncan, Galapagos Islands. It is the first living species of a turrid genus otherwise known from Neogene fossils from the New World tropics. The genus is assigned to Crassispirinae on shell and radular characters. It has a columellar plication, evidently convergent with that of Borsoniinae.

*Key Words:* Prosobranch gastropod; Turridae; Crassispirinae; *Buridrillia* new species; Galapagos Islands, Ecuador.

## INTRODUCTION

André and Jacqueline DeRoy were for many years avid collectors of Galapagan marine mollusks and are knowledgeable students of the molluscan fauna of the archipelago. Mr. DeRoy was a commercial fisherman who undertook numerous dredging operations, and Mrs. DeRoy spent much of her time collecting in shallow waters. For the past 30 years, they have contributed specimens to the American Museum of Natural History and the Natural History Museum of Los Angeles County for study and report. Among these specimens is a new species of turrid gastropod collected in the 1970s. We take great pleasure in describing this new turrid in honor of the DeRoys.

The species described here is of more than usual interest for two reasons: it represents the first living record of a genus previously believed to have become extinct in the late Neogene, and study of its radular characters results in its assignment to a subfamily other than that which comes to mind upon first examination of shell morphology.

Abbreviations for institutions used in the text: AMNH—American Museum of Natural History, New York; LACM—Los Angeles County Museum of Natural History, Los Angeles.

## SYSTEMATICS

Family TURRIDAE Swainson, 1840

Subfamily CRASSISPIRINAE Morrison, 1966
Genus *Buridrillia* Olsson, 1942

Type species (original designation): *Clathrodrilla (Buridrillia) panarica* Olsson, 1942:51. Pliocene of the Burica Peninsula, Panama and Costa Rica.

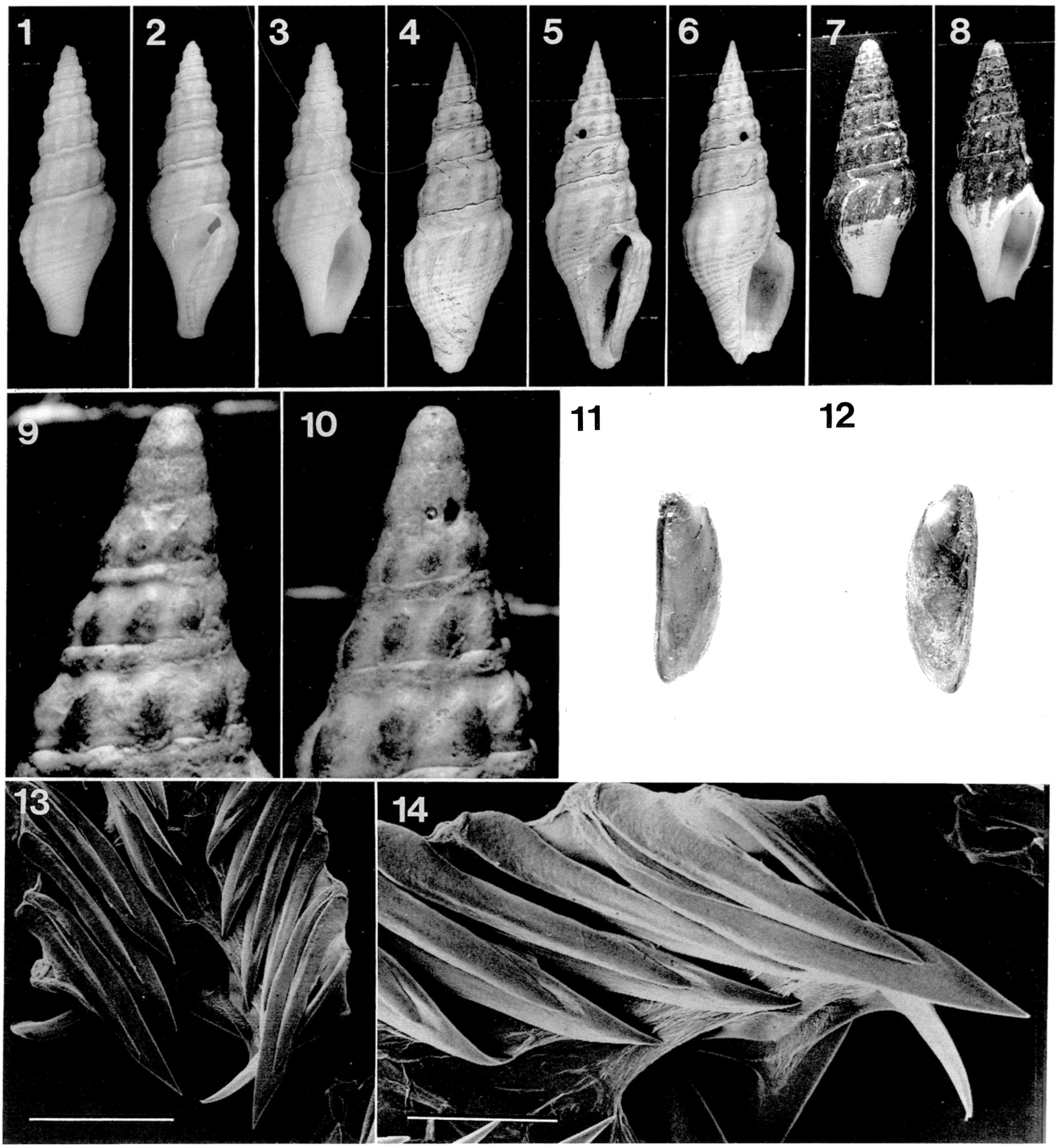
Olsson (1964:98) extended the distribution of the type species to the Esmeraldas formation of Ecuador, from which sediments he also described five additional species of *Buridrillia*. He allocated the genus to "Drillinae" as then understood, which predated the proposal of Crassispirinae.

In his revision of turrid classification, Powell (1966: 62) assigned *Buridrillia* to the Borsoniinae, evidently based on the prominent columellar plication of the type species. However, the radular tooth of the new species *B. deroyorum* is clearly of the duplex (terminology of Morrison, 1966) or modified wishbone type, comparable to that illustrated by Kantor and Taylor (1991, fig. 2B) for *Clionella sinuata* (Born, 1778). This tooth type is characteristic of (but not limited to) the Crassispirinae (McLean, 1971; McLean *in* Keen, 1971). It is substantially different from the long hollow tooth of the Borsoniinae.

Shell characters other than the columellar plication of *Buridrillia* are reminiscent of the crassispirine genera *Crassispira (Crassispira)* Swainson (1840:152, 313), and *Hindsiclava* Hertlein & Strong (1955:227), in which there is a subsutural cord on the smooth shoulder, a deep sinus on the concave shoulder, and axial and spiral sculpture on the body whorl. The columellar plication of *Buridrillia* is evidently convergent with that of Borsoniinae. Assignment of the genus to Crassispirinae is supported both on radular characters and the balance of shell characters.

*Buridrillia deroyorum* new species
(figures 1–14)

**Description:** Shell sturdy, fusiform, attaining 57+ mm in length. Spire acuminate, whorls shouldered, shoulder concave, with prominent subsutural cords; axial sculpture of nodose ribs; spiral sculpture of depressed lirae that decussate the axial ribs to form three rows of nodules;




**Figures 1–14.** *Buridrillia deroyorum* new species. **1–3.** Holotype, AMNH 232163; **4–6.** Paratype #8, LACM 2461; **7, 8.** Paratype #5, AMNH 232165 (Figures 1–8, slightly reduced, see Table 1 for measurements). **9, 10.** Paratype #8, LACM 2461, spire enlarged about X 2.5. **11, 12.** Paratype #10, Operculum, **11.** View of interior side, **12.** View of exterior side (Figures 11, 12, about X 2.5). **13, 14.** Paratype #12, Radular dentition (Scale bar for 13 = 100$\mu$m, for 14 = 50$\mu$m).

body whorl with numerous spiral lirae that interrupt the axial sculpture on the anterior half. Protoconch lost on 14 of the 15 specimens, protoconch poorly preserved on paratype #8 (Table 1), of 2 1/2 apparently smooth whorls (Figures 9, 10); body whorl sculptured with 12 to 13 axial ribs. Aperture large, outer lip thin, inflated, explaned with a deep, U-shaped anterior notch, posterior notch deep, widely open; columella with a prominent plication

**Table 1.** *Buridrillia deroyorum* new species. Shell measurements in mm. Spires not preserved, except for paratype #8. Number of specimens examined = 15.

| | Length | Width | # Whorls |
|---|---|---|---|
| AMNH 232163 | | | |
| Holotype | 50.1 | 17.8 | 7½ |
| AMNH 232164 | | | |
| Paratype #1 | 34.4 | 13.7 | 5½ |
| Paratype #2 | 34.2 | 13.0 | 5½ |
| Paratype #3 | 25.7 | 10.5 | 5½ |
| AMNH 232165 | | | |
| Paratype #4 | 52.4 | 18.7 | 7½ |
| Paratype #5 | 45.5 | 17.1 | 6½ |
| Paratype #6 | 31.0 | 16.1 | 6½ |
| Paratype #7 | 24.3 | 10.7 | 6 |
| LACM 2461 | | | |
| Paratype #8 | 57.3 | 19.4 | 9½ |
| Paratype #9 | 56.1 | 18.8 | 7½ |
| *Paratype #10 (operculum) | 48.9 | 17.3 | 7½ |
| Paratype #11 | 35.8 | 13.1 | 7½ |
| *Paratype #12 (radula) | 22.4 | 9.8 | 6½ |
| Paratype #13 | 15.2 | 6.4 | 5½ |
| Paratype #14 | 12.3 | 5.1 | 5 |
| Range | 12.3–57.3 | 5.1–19.4 | |
| Mean | 34.4 | 13.7 | |

* Specimens providing radula and operculum for photography.

on the proximal part of the pillar. Periostracum dense, flaky, greenish-brown. Shell color buff with light tan bands in the subsutural area and across base; aperture glossy white, tinged with tan. Operculum, small, thin, light brown, long (H=7.9 mm) and narrow (W=2.6 mm) with a marginal ridge and a terminal nucleus (Figures 11, 12). Radula of both rows of marginal teeth only, of the duplex or modified wishbone type (Figures 13, 14).

**Type locality:** North of Isla Floreana [also known as Santa Maria Island or Charles Island] 1°14'S, 90°26'W, Galapagos Islands, Ecuador in 310 m, dredged by the DeRoys, April 15, 1979.

**Specimens examined:** (All dredged by A. and J. DeRoy, in the Galapagos Islands, see Table 1 for measurements): Holotype AMNH 232163 (Figures 1–3) and paratypes 1–3, AMNH 232164, from the type locality; paratypes 4–7, AMNH 232165, from the type locality, May 15, 1978, in 310 m; paratypes 8–14; LACM 2461, off Isla Duncan [0°25'S, 90°43'W] in 365 m, March, 1979.

**Distribution:** Known only from the Galapagos Islands from the type locality and off Isla Duncan, in 310 and 365 m.

**Remarks:** Of the five known Neogene species of *Buridrillia* from the Esmeraldas formation described by Olsson (1964), *B. deroyorum* most resembles the type species, *B. panarica*, from the Pliocene of Pacific Panama (type locality) and Costa Rica (Charco Azul formation) as well as from the Pliocene of Ecuador (Esmeraldas formation). The two species are of similar size and have a similar, well-developed columellar plication. From *B. panarica* it differs in having a raised subsutural cord rather than a constricted subsutural band, and in having much more strongly nodose axial ribs.

The columellar plication of *B. deroyorum* is present on all fifteen specimens regardless of size. However, the strength of its continuation on the internal pillar may differ. A strong plication is visible through a hole on the back side of paratype 10 made to extract the radula. However, the pillar in Paratype 8 (Figures 5, 6), which is visible through a naticid drill hole, has a very faint plication. Similar variation has been noted for fossil species of *Buridrillia*. Olsson (1964:98) pointed out that some specimens of the type species have a well-marked columellar fold, but that others lack it or have slight swellings or raised lines. Other species described by Olsson have poorly marked folds or lack folds.

The present distribution of *Buridrillia* is that of a relict genus, a survivor in the eastern Pacific at the Galapagos refugium of a turrid group that was once more widely distributed in the New World tropics during the Neogene.

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